Release Notes for RFS6000 v4.2.1.0-005R

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1 Introduction to New Features

Wi-NG 4.2.1 is a Maintenance release of Motorola's industry leading Wireless Controller operating system. This release addresses the following issues from Wi-NG 4.2.0:

- Updated internal antenna power table.
- Correction to incorrect regulatory domain setting
- Improvements to AP650 performance when in high density RF environments.
- Allow 14 character serial number when downgrading from 4.2.x to a lower version.

2 RF Firmware Versions & Compatibility Matrix

RFS6000 firmware version 4.2.1.0-005R

Access Point/Access Port	Firmware Version
AP300 (WISP)	00.02-37
Layer 3 AP300 (WISPe)	01.00-2290r
WIPS Sensor Image for AP300	4.6.0.4[1]
AP100	02.05-00
AP4131	07.00-08
AP4131 Revert	00.00-00
Adaptive AP Image for AP-5131 (ADP image)	2.4.1.0-010R (sensor - 5.1.0.6)
Adaptive AP Image for AP-7131	4.0.3.0-010R (sensor 5.1.0.13)
AP650	0.1-1172R

Note: Please upgrade Adaptive AP51X1 to ADP image v2.4.1 to work with RFS switch release v4.2.1. Also, upgrade AP7131 image to 4.0.3 to work with RFS switch release v4.2.1.

For the prior Wi-NG releases on the RFS6000, please see compatibility matrix with Adaptive APs below:

RFS6000	AP5131 802.11 a/b/g	AP7131 802.11 a/b/g/n	AP7131N 802.11 a/b/g/n
v3.1	v2.0	N/A	N/A
v3.2	v2.1	N/A	N/A
v3.3.1	ADP v2.2.1 (Separate image)	v3.1.1 (to be used only in Adaptive AP installations)	N/A
v3.3.2	ADP v2.2.2	v3.1.3 (to be used only in	N/A

[1] Incorrectly reported by switch as 00.00-04

	(Separate image)	Adaptive AP installations)	
v4.0	ADP v2.3.0 (Separate image)	v3.2.0	N/A
v4.0.1	ADP v2.3.1 (Separate image)	v3.2.1	N/A
v4.0.2	ADP v2.3.2 (Separate image)	v3.2.2	N/A
v4.1	ADP v2.4.0 (Separate image)	v4.0.1	v4.0.1
V4.2	ADP v2.4.1 (Separate image)	v4.0.3	v4.0.3

3 Installation Guidelines

For accessing the Graphical User Interface (GUI) of the RFS6000 switches, the following browsers (and Java versions) are supported:

- Internet Explorer 6.0 , 7.0 and 8.0 on Windows 2000, XP (JRE 1.6)
- Firefox 2.0 and 3.x on Windows 2000, XP (JRE 1.6)
- Firefox 1.5 and 3.x on RedHat Linux (tested with JRE 1.4.2)

3.1 Firmware Upgrade Procedure

This section outlines the upgrade procedure to v4.2.1.

The method described in this section uses the Command Line Interface (CLI) and GUI and the Auto-Install procedures. To log into the CLI, either SSH, Telnet or serial access can be used (whichever exists).

3.1.1 Upgrade the RFS6000 Switch

1. Copy the RFS6000-4.2.1.0-005R.img to your tftp/ftp server.
2. Use the "**upgrade ftp://<ip address of server>/<name of file>**" command from CLI or **Switch->Firmware->Update Firmware** option from the GUI. You may need to specify the username and password for your ftp server.
3. Restart the switch. From CLI the command is "reload".

3.1.2 Upgrading Adaptive APs (i.e. AP7131 3.2.2 or 4.0.1 to 4.0.3 or ADP5131 2.3.2 or 2.4.0 to 2.4.1)

Note: AP-713x 4.0 is not a supported Adaptive AP firmware version

Note: For upgrading AP-7131 to 4.0.3 customer has to first upgrade to pivot image AP-7131-3.2.1.0-012R (if AP-7131 version is lower than 3.2.1) and then to 4.0.3, otherwise the upgrade will not work.

If the AP7131 version is already at v3.2.2 you do not need to downgrade to 3.2.1. You can go directly to AP7131 v4.0.3.

The Wireless Switch can upgrade the Adaptive AP's either manually or automatically. The exception is Mesh client bridges which should always be upgraded manually first. For either procedure, please upgrade the wireless switch to the relevant firmware version and then follow the steps below:

For auto-upgrade of Adaptive APs

By default, auto-upgrade is enabled on the RFS Switch.

1. The Wireless switch has to host the file for the AP to download and upgrade. Please copy the Adaptive AP image files onto the switch using ftp/ tftp/ usb transfer.

2. Please switch to wireless mode. Then, configure the path to the Adaptive AP image file using command:

```
RFS6000(config-wireless)#ap-image apx131 <path where the image file is copied>
```

e.g. `ap-image ap7131 flash:/apn_04000300010R.bin`

Note: When Adaptive AP initiates adoption, the wireless switch pushes the details of the image to be upgraded to the Adaptive AP. The Adaptive AP downloads image from wireless switch and reinitiates adoption. This process is transparent to the user.

For a manual upgrade of the Adaptive APs

1. Please ensure that auto upgrade is disabled on the switch and all the Adaptive APs are adopted by v4.2.1

```
RFS6000(config-wireless)# no aap auto-upgrade enable
```

2. Manually upgrade from the switch all Mesh client bridges (ADP5131/AP7131)

```
RFS6000(config-wireless)# aap fwupdate n (where n is the ap index for your mesh client bridge)
```

3. Manually upgrade the Adaptive AP from the wireless switch by using the following command:

```
RFS6000(config-wireless)# aap fwupdate n-x (where n & x are the limits of your ap indexes)
```

The version of the upgrade APs can be verified by:

```
RFS6000(config-wireless)# show wireless ap<index of adopted aap>
```

or by browsing to Network-> AccessPort> AdoptedAp> FwVersion

AP5131s can only be upgraded via the switch from v2.1 (on the AP) onwards to the follow-on Adaptive images. AP-7131 can only be upgraded via the switch from v3.1 (on the AP) onwards.

3.2 Auto-Install Procedure

Auto Install in v4.2.1 works via the DHCP server. This requires the definition of a Motorola Vendor Class and four sub-options under option 43 namely:

- Option 186 - defines the tftp/ftp server and ftp username, password information
- Option 187 - defines the firmware path and file name
- Option 188 - defines the config path and file name
- Option 189- defines the RFS6000 ip address to where a L3 AP300 RF port or Adaptive AP will be adopted

- Option 190 - defines the cluster config path and file name.

Note that the DHCP vendor class for the RFS6000 is SymbolWS.RFS6000-4.2.1.0-005R

The individual features (config, cluster-config and image) may be enabled separately via the CLI, snmp or Applet. If a feature is disabled then it will be skipped when Auto install is triggered.

For the static case, where the URLs for the configuration and image files are not supplied by DHCP, the URLs may be specified via the CLI, snmp or Applet. The CLI may also be used to define the expected firmware image version. If the image version is not specified we will attempt to derive it from the file name, if it can not be derived from the filename then the system will simply attempt to load something other than what it is currently running.

Configuration files are tracked by their MD5 checksum, so if a file is renamed it will still have the same md5 sum. Once a file has been loaded it will not be reloaded, even if the local configuration information is changed.

The requested image file version, if any, is checked against the current version before any attempt is made to load it. If the requested version is the same as the running version then no further action is taken. If the image file version, embedded in the file header, does not match the expected version then no further action will be taken. If the version has not been specified then the header of the image file will be compared to the local version, if they are the same then no further action will be taken.

Please note that once the system has been operating for ten minutes, Auto Install is disabled, though it may still be reconfigured. This is to prevent the system from attempting to re-install each time a DHCP lease is renewed.

Configuring Auto Install via the CLI

There are three compulsory and four optional configuration parameters.

The compulsory parameters are:

- configuration upgrade enable
- cluster configuration upgrade enable
- image upgrade enable

Optional (only for the static case):

- configuration file URL
- cluster configuration file URL
- image file URL
- expected image version

The three enables default to yes, the URLs and the version default to "" (blank)

```
RFS6000(config)#show autoinstall

feature    enabled      URL

config       yes         --not-set--

cluster cfg  yes         --not-set--

image        yes         --not-set--

expected image version  --not-set--
```

The three enables and the expected version affect any mode of operation; the URLs are only used for the static (non DHCP option) mode.

Enables are set using the **autoinstall <feature>** command:

```
RFS6000>enable
RFS6000#conf t
RFS6000(config)#autoinstall image
RFS6000(config)#autoinstall config
RFS6000(config)#autoinstall cluster-config
```

After this configuration, any switch reboot with DHCP enabled on the port will trigger Auto Install, provided the DHCP Server is configured with appropriate options.

After the reboot switch would try to acquire the IP address from DHCP server. The DHCP server will provide the auto-install parameters like image, config and cluster-config files and paths provided if they were configured in DHCP server. Based on the parameters switch downloads the corresponding files from the specified server and reboots the box again in order to take effect the newly downloaded configurations. After the switch auto-reboot, the config and cluster-config (whichever) downloaded as part of auto-install will be applied to the switch becomes switch's running-config.

NOTE: The cluster-config will be applied to the running-config but not auto saved to the startup-config. If user wants to reboot the box again for any reason, must save the running-config using the command "write-memory". Otherwise on the next boot, switch will have only the startup-config and not the cluster-config in running-config.

The "enables" are cleared using the **no autoinstall <feature>**

URLs and the version string are set as text and can be cleared by using an empty pair of double quotes to denote the blank string. In the following example we define the three URLs and the expected version of the image file and then enable all three features for Auto Install.

```
RFS6000(config)#autoinstall config url
ftp://ftp:ftp@192.9.200.1/RFS6000/config

RFS6000(config)#autoinstall cluster-config url
ftp://ftp:ftp@192.9.200.1/RFS6000/cluster-config

RFS6000(config)#autoinstall image url
ftp://ftp:ftp@147.11.1.11/RFS6000/images/RFS6000.img

RFS6000(config)#autoinstall image version 4.2.1.0-005R

RFS6000(config)#autoinstall config

RFS6000(config)#autoinstall cluster-config

RFS6000(config)#autoinstall image

RFS6000(config)#show autoinstall

feature    enabled      URL

config       yes        ftp://ftp:ftp@192.9.200.1/RFS6000/config

cluster cfg  yes        ftp://ftp:ftp@192.9.200.1/RFS6000/cluster-config
```

```
image        yes
ftp://ftp:ftp@147.11.1.11/RFS6000/images/RFS6000.img

expected image version  4.2.1.0-005R
```

Once again, for DHCP option based auto install the URLs will be ignored and those passed in by DHCP will not be stored.

Whenever a string is blank it is shown as **--not-set--**.

4 Important Notes

1. Applying serial number patch on WiNG version 4.2.1 will result in an error. WiNG version 4.2.1 supports 14 character serial numbers without the patch. The serial number patch is not required on WiNG 4.2.1.
2. If the serial number patch is applied to a switch with the boot partition running 4.1.x or lower and the other partition running 4.2.x, the patches display incorrectly on the 4.2.x partition. It will display "SerialNumberUpdate (1.1)" on both the primary and secondary patches.

5 Issues Resolved

Wi-NG 4.2.1 addresses the following issues from Wi-NG 4.2.0:

- Updated internal antenna power table.
- Correction to incorrect regulatory domain setting
- Improvements to AP650 performance when in high density RF environments.
- Allow 14 character serial number when downgrading from 4.2.x to a lower version.